

Montana Board of Oil and Gas Conservation Environmental Assessment

Operator: Denbury Onshore, LLC
Well Name/Number: Unit 11X-03
Location: (NW NW) Lot 4 Section 3 T9N R58E
County: Fallon, MT; Field (or Wildcat) Cabin Creek Field

Air Quality

(possible concerns)

Long drilling time: No, 15-25 days drilling time.

Unusually deep drilling (high horsepower rig): No, triple drilling rig for 9,400' TD, vertical development well, Interlake, Stony Mountain and Red River Formations.

Possible H₂S gas production: Yes, possible H₂S gas.

In/near Class I air quality area: No Class I air quality area in area of review.

Air quality permit for flaring/venting (if productive): Yes, DEQ air quality permit required under 75-2-211.

Mitigation:

☒ Air quality permit (AQB review)

☐ Gas plants/pipelines available for sour gas

☐ Special equipment/procedures requirements

☐ Other: _____

Comments: No special concerns – using triple derrick drilling rig to drill a vertical 9,400' TD Red River Formation well test. If existing gathering system for associated gas is in the area, gas can be gathered or if no gathering system nearby, associated gas can be flared under Board Rule 36.22.1220.

Water Quality

(possible concerns)

Salt/oil based mud: Use freshwater and freshwater mud system for drilling surface hole (Rule 36.22.1001) and main hole will utilize oil based invert drilling mud system (9.3-10.1 lbs./gal) to TD.

High water table: No, high water table anticipated at this location.

Surface drainage leads to live water: No, closest drainages are unnamed ephemeral tributary drainages to Cabin Creek, about 1/8 of a mile east southeast and about 3/8 of a mile to the northwest from this location

Water well contamination: None, closest water wells are about 1/2 of a mile to the southwest and about 7/8 of a mile to the northwest from this location. These water wells range in depth from 260' to 300' in depth. Surface casing will be set below all known water wells in the area, 1900'. Surface hole will be drilled with freshwater and freshwater muds, rule 36.22.1001. Surface casing will be set to 1900' and cemented back to surface.

Porous/permeable soils: No, sandy clay soils.

Class I stream drainage : No Class I stream drainages in the area of review.

Mitigation:

☒ Lined reserve pit

☒ Adequate surface casing

☐ Berms/dykes, re-routed drainage

☐ Closed mud system

☒ Off-site disposal of solids/liquids (in approved facility)

☐ Other: _____

Comments: 1900' of surface casing will be cemented to surface and is adequate to protect freshwater zones. Also, fresh water mud systems to be used on surface hole, rule 36.22.1001. Drilling reserve pit will be lined with a 12 mill liner, rule 36.22.1005. Oil base invert drilling fluids will be recycled and completion fluids will be hauled to a

commercial Class II disposal. Solids will be left on site in the lined reserve pit after being allowed to dry and stabilized. The pit liner will be folded over the top of the solids and buried with a minimum of 4' of spoil dirt to fill pit over the top of the cuttings.

Soils/Vegetation/Land Use

(possible concerns)

Stream crossings: None anticipated.

High erosion potential: Yes possible high erosion potential due to a moderate fill slopes at this well site. Location will need a moderate cut, up to 10.4' and moderate fill, up to 15.8', required.

Loss of soil productivity : None, location to be restored after drilling well, if well is nonproductive. If productive unused portion of drillsite will be reclaimed.

Unusually large wellsite: Large, 300'X400 location size required.

Damage to improvements: Slight, surface use is grazing land.

Conflict with existing land use/values: Slight

Mitigation

☐ Avoid improvements (topographic tolerance)

☐ Exception location requested

☒ Stockpile topsoil

☐ Stream Crossing Permit (other agency review)

☒ Reclaim unused part of wellsite if productive

☐ Special construction methods to enhance reclamation

☐ Other _____

Comments: All of the access will be over existing county roads, Anticline Road and existing lease roads. About 254' of new road will be constructed into this location off the existing lease road. No special concerns.

Health Hazards/Noise

(possible concerns)

Proximity to public facilities/residences: Oil field buildings and facilities are the only structures nearby. Unknown if they are any residences nearby. Either way the drilling of this well should not pose any problems.

Possibility of H2S: Yes H2S possible.

Size of rig/length of drilling time: Triple drilling rig 15 to 25 days drilling time.

Mitigation:

☒ Proper BOP equipment

☐ Topographic sound barriers

☐ H2S contingency and/or evacuation plan

☐ Special equipment/procedures requirements

☒ Other: Standard H2S safety equipment and crew training and certification should be adequate for this well.

Comments: No special concerns. Proper BOP stack, rule 36.22.1014 (5000 psig annular and 10,000 psig Cameron Double ram with pipe rams) and surface casing should be able to control any problems that could occur.

Wildlife/recreation

(possible concerns)

Proximity to sensitive wildlife areas (DFWP identified): None, identified

Proximity to recreation sites: None identified.

Creation of new access to wildlife habitat: No

Conflict with game range/refuge management: No

Threatened or endangered Species: Species identified as threatened or endangered is the Whooping Crane. Candidate species are the Greater Sage Grouse and the Sprague's Pipit.

MTFWP Natural Heritage Tracker website lists two (2) species of concern. They are the Ferruginous Hawk and the Greater Sage Grouse.

Mitigation:

- ☐ Avoidance (topographic tolerance/exception)
- ☐ Other agency review (DFWP, federal agencies, DSL)
- ☐ Screening/fencing of pits, drillsite
- ☐ Other: _____

Comments: The surface ownership is private land. There may be species of concern that maybe impacted by this wellsite. We ask the operator to consult with the surface owner as to what he would like done, if a species of concern is discovered at this location. The Board of Oil & Gas has no jurisdiction over private surface lands.

Historical/Cultural/Paleontological

(possible concerns)

Proximity to known sites: None identified.

Mitigation

- ☐ avoidance (topographic tolerance, location exception)
- ☐ other agency review (SHPO, DSL, federal agencies)
- ☐ Other: _____

Comments: On private surface land. There may be possible historical/cultural/paleontological sites that maybe impacted by this wellsite. We ask the operator to consult with the surface owner as to his desire to preserve these sites or not, if they are found during construction of this wellsite. The Board of Oil & Gas has no jurisdiction over private surface lands.

Social/Economic

(possible concerns)

- ☐ Substantial effect on tax base
- ☐ Create demand for new governmental services
- ☐ Population increase or relocation

Comments: No concerns, a development oil well within the Pine Oil Field.

Remarks or Special Concerns for this site

Well is a 9,400' vertical Red River Formation well test in the Cabin Creek Oil Field.

Summary: Evaluation of Impacts and Cumulative effects

No long term impacts expected. Some short term impacts will occur.

I conclude that the approval of the subject Notice of Intent to Drill (does/**does not**) constitute a major action of state government significantly affecting the quality of the human environment, and (does/**does not**) require the preparation of an environmental impact statement.

Prepared by (BOGC): /s/Steven Sasaki
(title:) Chief Field Inspector

Date: May 9, 2013

Other Persons Contacted:

Montana Bureau of Mines and Geology, GWIC website

(Name and Agency)

Fallon County water wells

(subject discussed)

May 9, 2013
(date)

US Fish and Wildlife, Region 6 website
(Name and Agency)
ENDANGERED, THREATENED, PROPOSED AND CANDIDATE SPECIES MONTANA
COUNTIES, Fallon County
(subject discussed)

May 9, 2013
(date)

Montana Natural Heritage Program Website (FWP)
(Name and Agency)
Heritage State Rank= S1, S2, S3, T9N R58E
(subject discussed)

May 9, 2013
(date)

Montana Cadastral Website
(Name and Agency)
Surface Ownership and surface use Section 3 T9N R58E
(subject discussed)

May 9, 2013
(date)

If location was inspected before permit approval:
Inspection date: _____
Inspector: _____
Others present during inspection: _____